

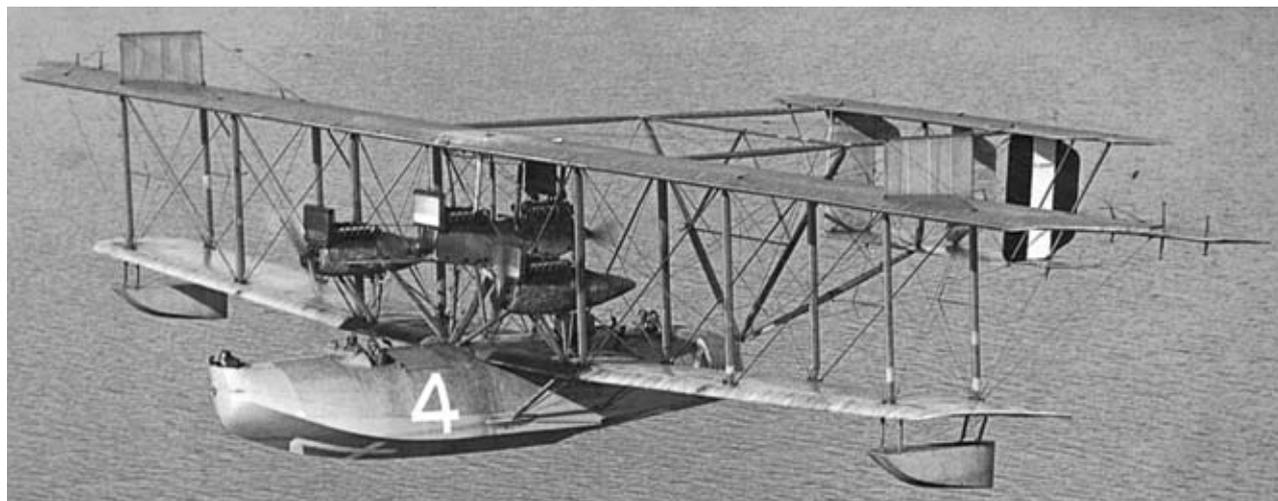


Elmer F. Stone '13

and the Pioneering Role of Coast Guard Academy Graduates in Early Naval and Coast Guard Aviation

by William H. Thiesen, Ph.D.

Atlantic Area Historian, United States Coast Guard



A rare photograph of NC-4 during flight operations. NC-4 had three forward facing tractor engines and one center-mounted pusher engine. (Courtesy of the U.S. Navy)

One hundred years ago, during the dawn of the twentieth century, a transportation revolution took place that swept aside centuries of pre-industrial technology, such as animal- and wind-driven machines. In their place came steam and internal combustion engines, hydraulic and pneumatic power, automobiles and aircraft. During this era of rapid technological change, visionaries such as Elmer Fowler Stone rose to the challenge, and through their technical skill, ingenuity and perseverance, developed these technologies into modern forms of transportation commonly used worldwide since the early twentieth century.

Like many of his technologically minded contemporaries, Elmer Stone began life in small-town America. In 1887, he was born on a farm in Livonia, New York, just south of Rochester; however, at a young age his family moved to Norfolk, Virginia, located in the maritime center of Hampton Roads. This region proved a focus of new naval technology, with the highly-mechanized Newport News Shipbuilding Company and nearby Norfolk Navy Yard building and maintaining the nation's new steel navy.

So it must have seemed logical that an intelligent and inquisitive young man raised in such nautical surroundings would apply for admission into the United States Revenue Cutter Service School of Instruction (forerunner of the United States Coast Guard Academy), located in New London, Connecticut. The Revenue Cutter Service provided its officers

an opportunity to serve on the high seas, and in addition to training on sailing ships, gain experience with steam ships, the largest man-made machines of the day. Stone topped the list of applicants for the class of 1913, a small group that would feature several distinguished graduates in the history of the U.S. Coast Guard.

In three years, Stone graduated from the Academy and was commissioned as a third lieutenant. His first assignment was the cutter *Onondaga*, patrolling the Mid-Atlantic Coast out of Hampton Roads. During his first year, Stone qualified as an engineering officer, and then requested and was granted assignment as a line officer. In the spring of 1915, Stone demonstrated his ability as a boat coxswain in rescuing the crew of the schooner *C.C. Wehrum*, which wrecked in a storm off False Cape, Virginia. For this heroic effort, Stone received a commendation from the assistant secretary of the Department of Treasury.

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A portrait shot of Elmer Fowler Stone, in his Coast Guard uniform, shown later in his career. (Courtesy of the U.S. Coast Guard)

Despite his skill as a line officer, Stone's interest and true aptitude lay with matters of engineering and technology. In 1903, before he entered the Academy, the Wright Brothers had already completed their unprecedented "First Flight," not far from Stone's home in Norfolk. The Curtiss Aeroplane & Motor Company established one of the nation's first flying schools in Newport News, Virginia, near Onondaga's homeport. In early 1915, after witnessing Curtiss's seaplane operations, Stone experienced his own first flight in a Curtiss F "flying boat" and was convinced that aviation could revolutionize the Coast Guard's traditional missions of search and rescue, and law enforcement.

Stone became a driving force behind early Coast Guard aviation, but he had to convince others to join the cause. The movement gained momentum as one-by-one, his Academy brethren backed his effort to establish a Coast Guard aviation branch. Stone's Onondaga shipmate, Lieutenant Norman B. Hall (Class of 1908), also experienced his first flight at the Curtiss flight school and the two junior officers converted Onondaga's skipper, Commander Benjamin Chiswell (Class of 1896), to their cause. By early 1916, Coast Guard Commandant Ellsworth Bertholf (Class of 1889) had also become a believer and sent Stone and Second Lieutenant Charles E. Sugden (Class of 1909) to the U.S. Navy's new flight school in Pensacola, Florida. Lt. Hall was assigned to Curtiss's New York aircraft factory to study design, construction and maintenance. Bertholf also lobbied Congress to approve a Coast Guard "aerial coastal patrol" for the service and hired aircraft developer Glenn H. Curtiss to develop and build a flying boat design.

By the end of 1916, it seemed that aviation was well on its way to becoming an accepted part of Coast Guard operations. Stone and Sugden completed several months of the one-year training program at Pensacola. Congress passed Bertholf's aerial coastal patrol legislation, which included ten Coast Guard air stations, and Curtiss experimented with flying boat designs. In addition, Hall was developing instrumentation and studying strength of materials used in the latest aircraft manufacturing methods. He would eventually become the service's first aviation engineering officer. And by the spring of 1917, Stone and Sugden completed their training, received their wings, and the Navy designated them Aviator #38 and Aviator #43, respectively.

With World War I erupting in Europe, the early movement for Coast Guard aviation slowed to a standstill. As the United States entered the war, the Coast Guard was transferred to the Navy Department by executive order. Since Coast Guard aviators were assigned to flight training after post-Academy

cutter assignments, they were senior to nearly all new U.S. Navy aviators and were given command of wartime naval air stations. Lt. Sugden took command of Ile-Tudy Naval Air Station, on the northwest French coast. In addition, Coast Guard Academy graduates Stanley V. Parker (Class of 1906), Philip B. Eaton (Class of 1908), Eugene A. Coffin (Class of 1910) and Robert Donahue (Class of 1913) took command of other naval air stations.

In the meantime, the Navy assigned Stone and Academy classmate Robert Donahue to the aviation detail on board USS Huntington, an armored cruiser built by Newport News Shipbuilding Company in 1903, the same year that the Wright Brothers first took to the air. Stone probably recognized the irony of his assignment to a ship with such a history. Huntington was one of two cruisers fitted with pneumatic aircraft catapults and, from the middle of 1917 through the late summer of 1918, Stone served as a seaplane aviator and studied operating problems with the new shipboard catapult while the cruiser served in the Atlantic. Stone learned a great deal about aircraft catapults and naval aviation operations on the open ocean and he became closely associated with such naval aviation pioneers as Marc Mitscher and William Moffett.

In September 1918, Stone received promotion to first lieutenant and a transfer to the Navy's Bureau of Construction and Repair (predecessor of the Navy's Bureau of Aeronautics) in Washington, D.C. By early spring of the next year, the Navy transferred him to Naval Air Station Rockaway, in New York, to serve as a pilot in NC Seaplane Squadron One. His mission was to pilot the seaplane NC-4 in the first attempt to fly across the Atlantic Ocean. The aircraft stationed at Rockaway were very large "NC" (Navy-Curtiss) flying boats. The NC's had a biplane design with three forward facing tractor engines and a fourth center-mounted pusher engine facing to the rear. Each NC flying boat had a crew of six, including the pilot, co-pilot, radio operator, engineering officer, assistant engineer and commanding officer/navigator. Fully loaded with 1,800 gallons of fuel, the aircraft weighed about 28,000 pounds, 4,000 more

than under normal conditions. The overloaded aircraft had to fly nearly two miles at full speed to get airborne.

On 8 May 1919, NC-4 took flight along with squadron aircraft NC-1 and NC-3. A fourth seaplane, NC-2, proved unfit to fly so it was cannibalized for spare parts. The seaplanes' first leg would take them from Rockaway, east to Halifax, Nova Scotia; and on to Trespassy Bay, Nova Scotia, their departure point for Europe via the Azores. The NC flying boat's complex design proved problematic for such an endurance run. With Stone at the controls, NC-4 suffered a broken connecting rod after only four hours in the air, forcing it down for repairs near Chatham (Massachusetts) Naval Air Station, then under the command of Coast Guard Academy graduate Philip Eaton. After making it to Halifax, it was found that NC-4's steel propellers had cracked and they were replaced with wooden ones.

Along the leg crossing the Atlantic, the Navy stationed warships at fifty-mile intervals to serve as beacons and guard ships in case the aircraft required assistance. Due to poor weather, the crews of NC-1 and NC-3 became disoriented and landed their seaplanes to obtain a celestial navigation position before attempting to reach the Azores. Both were damaged while landing in heavy seas, rendering them incapable of further flight. Maintaining the only accurate navigation plot, NC-4 avoided disorientation and arrived at its destination in the Azores. From there, NC-4 continued on to land in the Tagus River in Lisbon, Portugal, before concluding its flight in Plymouth,

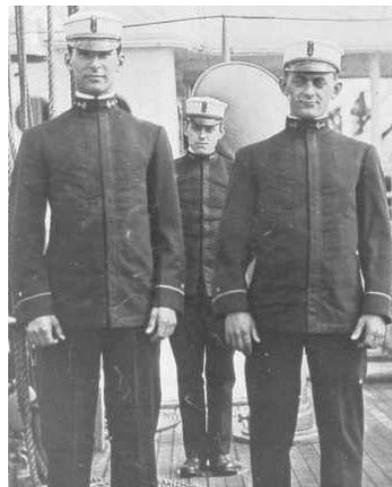
England.

In the early afternoon of 31 May 1919, after fifty-four hours in the air, Stone landed NC-4 in Plymouth harbor, becoming the first man to successfully fly an aircraft across the Atlantic. Stone completed his transatlantic flight eight years before Charles Lindbergh's famous solo crossing in the Spirit of St. Louis. Stone and the crew of NC-4 had proven the feasibility of transoceanic flight and their achievement attracted worldwide attention. Stone and the NC-4 crew were recognized with the Order of the Tower and Sword, Portugal's highest award; a French silver medal commemorating NC-4's historic flight; and Great Britain's Royal Air Force Cross. Upon their return home, President Roosevelt awarded the NC-4 crew the Navy Cross and later Congress struck a unique NC-4 Medal specifically for the crew of the record setting aircraft.

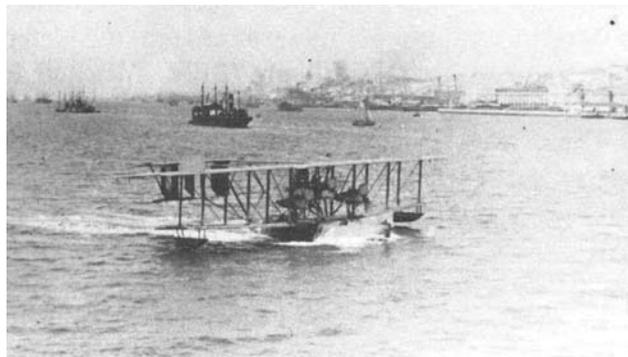
With the war over, the Coast Guard was returned to the Treasury Department by executive order and Stone received assignment as executive officer on the cutter Ossipee. In 1920, the service resurrected its fledgling aviation program and established its first air station at Morehead City, North Carolina. The service designated Stone as Coast Guard Aviator #1 and assigned him to refurbish and prepare four flying boats to operate at Morehead City Air Station. Stone's colleague, Charles Sugden, received the designation of Coast Guard Aviator #4 and, with his experience in running air stations for the Navy, Sugden received command of Morehead City. Later William P. Wishar (Class of 1909) took command of the base.

By the end of 1921, Congress failed to provide the funding to support operation of Morehead Air Station and it was decommissioned in 1922. The Navy requested the Coast Guard return Stone on loan and, for the next five years, Stone test flew everything from fixed-wing aircraft to dirigibles and balloons; however, his primary duty was to serve as the Navy's technical expert on shipboard aircraft catapults and deck arresting gear. He led development of a powder-operated catapult and arresting gear for the new aircraft carriers Langley, Lexington and Saratoga and wrote the aviation test requirements for the carriers.

During the mid-1920s, the service's Prohibition enforcement mission against Rum Runners along the U.S. coast rejuvenated interest in Coast Guard aviation. In 1926, the Coast Guard established an air station at Gloucester, Massachusetts, and placed Stone's 1913 Academy classmate and fellow aviation pioneer Carl C. von Paulsen in command. With this initial base, the Coast Guard re-instituted the



Cadet Elmer Fowler Stone (standing right) posing with other cadets on board a cutter. (Courtesy of the U.S. Coast Guard)



NC-4 landing in the Tagus River, Lisbon, Portugal. The worst of the Atlantic Crossing was over, but NC-4 even suffered a mechanical breakdown on its final leg from Lisbon to Plymouth, England. (Courtesy of the U.S. Navy)

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Stone preparing for yet another test flight in an amphibious aircraft destined for service in the U.S. Coast Guard. (Courtesy of the U.S. Coast Guard)

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aviation branch of the service and this time it remained permanently. During the 1930s, the service continued to build on its modest aviation establishment, adding more assets, air stations and personnel.

Meanwhile, Stone continued to work for the Navy. Due to his invaluable service, the Navy extended an invitation for Stone to transfer his commission from the Coast Guard to the Navy. But he remained true to his service and finally requested a return to Coast Guard duty. From his return to the service in 1926 through 1931, Stone saw duty on cutters enforcing Prohibition laws. He served first as executive officer on the Cutter *Modoc*, then as commanding officer of the Coast Guard destroyers *Monaghan* and *Cummings*.

Stone's return to Coast Guard aviation began in early 1932 with duty as the senior member of a trial board tasked with selecting new Coast Guard aircraft. And by the spring of 1932, he took command of Coast Guard Air Station Cape May. In 1934, he was assigned to Santa Monica, California's Douglas Aircraft Company in charge of inspecting new Coast Guard aircraft. During this

time, he piloted a new Coast Guard J2-F Grumman "Duck" to a world speed record for an amphibian aircraft of 191.734 miles per hour. In 1935, he received promotion to the rank of commander and took command of Coast Guard Air Patrol Detachment, San Diego. In May of 1936, while observing tests of new service aircraft at San Diego, Stone passed away at the age of forty-nine. He died doing what he knew best; testing aircraft to ensure the quality and safety of new Coast Guard air assets.

During his Coast Guard career, Elmer F. Stone accomplished a great deal. He served his country selflessly for over twenty-five years, including his service in World War I. He successfully championed the cause of early Coast Guard aviation. He was the first man in history to successfully pilot an aircraft across the Atlantic Ocean. He also pioneered the development of naval aviation, test flying aircraft of every kind then in use by the military. He helped perfect the take-off and landing gear necessary for shipboard aviation. He was designated Aviator #1 by the Coast Guard and Aviator #38 by the U.S. Navy. His medals and awards included the Navy Cross, Congressional NC-4 Medal and various foreign awards and medals. And perhaps most importantly, he was liked and respected by his peers in both the Coast Guard and the Navy; so it was only fitting, when he was interred at Arlington National Cemetery, that his pallbearers included officers from both military branches.

Dr. Thiesen received a Master's degree from East Carolina University's Program in Maritime History and earned a Ph.D. from University of Delaware's Hagley Program in the History of Technology and Industrialization. His research interests include Coast Guard history, naval history, ship design and construction, and the history of technology.



*Elmer Stone (standing left) posing with other officers and mascot of Cutter *Onondaga*. (Courtesy of the U.S. Coast Guard)*

Dr. Thiesen would like to thank CAPT Robert B. Workman (Class of 1959) for his assistance with this article. CAPT Workman's book, 'Float Planes, Flying Boats and the First Aircraft Carriers: An extraordinary era of collaboration between Navy, Marine Corps and Coast Guard Aviators,' will appear in print in 2011.'